
Mesenchymal stem cell extracellular vesicles as therapy for pulmonary fibrosis

Grant Award Details

Mesenchymal stem cell extracellular vesicles as therapy for pulmonary fibrosis

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-11192

Investigator:

Name:	James Hagood
Institution:	University of California, San Diego
Type:	PI

Disease Focus: Lung Disease, Fibrosis, Respiratory Disorders

Human Stem Cell Use: Adult Stem Cell

Award Value: \$865,282

Status: Pre-Active

Grant Application Details

Application Title: Mesenchymal stem cell extracellular vesicles as therapy for pulmonary fibrosis

Public Abstract:**Research Objective**

We propose to develop mesenchymal stem cell derived extracellular vesicles (MSC-EV) as treatment for lung fibrosis

Impact

MSC-EV are promising for several lung diseases, but we need to better understand how they work, where they go in the body, and whether there is a subset of MSC-EV with better efficacy

Major Proposed Activities

- To define the molecular characteristics, content, and effects of subsets of MSC-EV that do or don't express the Thy-1 protein
- To define the distribution of Thy-1 positive and negative MSC-EV in the body in the setting of lung fibrosis, and define what cells they interact with
- To compare the effectiveness of Thy-1(+) and Thy-1(-) MSC-EV in treating lung fibrosis of different causes, in comparison to existing treatments

Statement of Benefit to California:

There are estimated to be over 7000 individuals in California with idiopathic pulmonary fibrosis (IPF), an incurable and fatal disease. Current treatments only slow the disease progression, but do not cure IPF. Many of these individuals undergo lung transplantation which is very costly and at best adds a few years to life expectancy. Knowledge from this project may benefit other types of fibrosis such as liver fibrosis and heart failure.

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